THE

HORTICULTURAL REGISTER

AND

GARDENER'S MAGAZINE.

FEBRUARY 1, 1836.

Art. I. *Gardens, Hot-houses, &c., in the vicinity of Boston.*

[The following, with the exception of some notices of apparatus for heating by hot water, and the agricultural and economical improvements of Mr Cushing, which were appended by the Conductor, was written by Mr Joseph Breck, of Lancaster, Mass., who has the eye of a connoisseur, as well as the predilection of an amateur, for ornamental horticulture.]

To the lovers of Flora, nothing can be more acceptable than permission to visit some of the fine establishments which wealth has created in the vicinity of Boston, especially when stern winter has thrown his mantle of snow over the frost-bound earth, and his chilling blasts have compelled us to suspend the ordinary and pleasing operations of the garden. In a recent excursion, we had the pleasure of calling at some of these repositories of botanical and floral treasures. Although the main object of our visits was to notice the system of heating by hot water, yet we could not but admire the beauties which presented themselves to view as we hastily passed through the different structures of glass in artificial climates, so pleasingly contrasted with the rigors without.

Our first call was at the delightful summer residence of Colonel T. H. Perkins, at Brookline. The grounds are profusely ornamented by the numerous tribe of evergreen trees which always give delight to the eye, even at this inclement season. We have often admired the beautiful groups of the coniferous tribes planted by the hand of nature in their most congenial soil, in Maine, and wished that such might decorate the habitations of men; here our wishes were realized. How refreshing it would be, not only to the proprietors but also to the passing traveller, if this example was more extensively imitated; and

our mansions and cottages, instead of appearing like the heath of the desert, without an object on which the eye may rest with pleasure, were decorated with the rich variety of evergreen and other trees and shrubs, with which our forests and wastes abound, and which may be obtained with little or no expense, save that of collecting and planting.

We found here two extensive ranges of houses, each about three hundred feet in length. The old house is divided into four apartments; this we did not enter, but were informed that it is appropriated to the forcing of peaches and grapes. The new house, which has been erected within a few years, stands in front of the other, and is connected to it by high brick walls, which form a spacious area, devoted to forcing and other operations of the garden. The central part of the new house is more lofty than the wings, and devoted to flowers. The wings are divided into two apartments each; those on the right for peaches, the others for grapes. We were treated with much attention by Mr Cowan, the intelligent superintendant of the establishment, who gave us all the information desired respecting the heating apparatus, and also gratified us with a sight of the numerous and rare assemblage of plants under his care. At this season of the year, (December 24th) we did not expect so brilliant a display of flowers as would be a few weeks later, yet there were many beautiful specimens in bloom. Among the most attractive was the Camellia tribe, of which there were many plants, some very large, not a few of which were displaying their enchanting flowers. As we were not particularly acquainted with the different varieties, except the more prominent sorts, we cannot enumerate all that were in bloom. C. fimbriata arrested our attention by its pure white, delicately fringed petals, and is considered by amateurs a choice variety. The double white, red striped, and an exquisite rose-colored one, were among the more prominent ornaments of the house. The many vigorous buds gave promise of a succession of these rare flowers for months to come. Ericas, Primulas, Oxalis, Salvias, &c., were displaying their different charms, which we recognised as old acquaintances, together with many other unknown plants to which we were strangers, and with which we should be happy to become more familiar. The house exhibited a pattern of neatness, which, with the healthy appearance of the plants, gave conclusive evidence of the ability and attention of the head gardener. In the peach houses, we were highly interested by the masterly style in which the trees were trained, particularly those

planted in front and brought up under the glass: the old proverb was forcibly presented to the mind, "as the twig is bent the tree is inclined." We saw it literally fulfilled here, by the perfect manner in which the bodies of the trees were carried up under the rafters, while the branches were spread out to the influence of the sun as it willed the gardener. Having an appointment at the Messrs Winship's, we were compelled to cut short our visit, giving only a passing glance at the many interesting objects which were presented to our view.

At the well known establishment of the Messrs Winship, we found a large, commodious and well filled conservatory, recently erected in modern style. As the principal object of these gentlemen is to grow plants for sale, and to furnish bouquets, it is not, therefore, to be expected that so large and perfect specimens should be found as in private collections; as they are eagerly sought after and obtained by amateurs at almost any price. The numerous calls upon them for flowers, particularly at this season of the year, diminishes, in some degree, the splendor of the house. We found, however, much to interest us, and can confidently assure the public that they have one of the most extensive collections not only of greenhouse, but also hardy plants, in the country. It is with heartfelt satisfaction, that from the fact that this as well as other establishments of the kind are liberally patronised by the public, we are assured of a rapidly increasing taste for flowers in the community. The house appears to be constructed in the best possible manner to hold the greatest number of plants, and to display them in the most imposing style. We were again pleased with the perfect neatness of the house, and the fine order of the plants, which speak louder than words in praise of the head gardener.

After having partaken of the hospitalities of our friend Winship, he accompanied us to the elegant seat of J. P. Cushing, Esq., Belmont place, in Watertown, who gave us liberty to look over his grounds and conservatories. The approach to the mansion from the road is by a winding avenue through a fine grove of ancient deciduous trees. The first view of the garden and ranges of glass structure, as we emerged from the grove, was truly magnificent. The garden is a square, level plot, bounded on the north side by the conservatories, which, if we are not mistaken, are four hundred feet in length. On the east and west are high, substantial brick walls, to which are trained a choice collection of fruit trees imported the last season, already formed for the purpose, some of which are protected by glass. The southern wall is very ornamental and substantial, and so low

that the whole area and houses may be seen at a single glance outside the wall. Behind the central house, which is lofty, with an elliptical roof and front, rises the ornamental water tower, which in the distance appears like a part of it, but is, in reality, some rods in the rear. To the right and left of the central building are wings which drop in height a few feet from it, and from these wings two others extend themselves a few feet still less in height. The whole view is harmonious, and fills the mind with pleasure. As we walked through the garden, we passed a beautiful fountain, which, when desired, discharges its water from a marble urn which stands upon a granite pedestal in the centre of the reservoir. As the earth was thickly covered with snow, we could form no idea of the arrangement of the grounds; no doubt it corresponds in taste with everything else.

We entered the central house and found ourselves at once in a little paradise of flowers. The perfect arrangement of the plants, their beauty and odour, and the mildness of the atmosphere contrasted with the cold without, filled us with such emotions that some time elapsed before our eyes could be directed to any particular object. Mr Haggerston, the superintendant of the establishment, showed us every attention. It is not too much to say that he stands at the head of his profession, as all must confess, who have witnessed his skilful management, and the success which has attended his labors.

The Camellias are the first object on which the eye will rest. Here are some lofty plants, and although Mr Haggerston informed us that an unusual quantity had recently been cut, we thought there was a good display still. We were again delighted with a perfect specimen of C. fimbriata. C. warratah was also beautifully in flower, with numerous other fine varieties. We could not do justice were we to attempt a description of this splendid collection; and will therefore pass in to the stoves, or as we should call it, the torrid zone, where we were attracted by the gorgeous Euphorbia Poinsettii. This showy plant has been particularly noticed in Vol. I., p. 70. It is not the flower, but the large scarlet bractes, or leafy appendages to the flower, which attracts most beholders; but its curious anomalous flower, the botanist examines with the deepest interest. From the nectary, a singular opening in the flower, exudes a pure but dangerous nectar or honey. Vigorous plants of double red and double yellow Chinese Hibiscus, (varieties of Hibiscus rosa-sinensis) were in full splendor; we were informed that the double red had not been destitute of flowers for a year past. It is exceedingly ornamental, and said to be so

common in China that entire hedges are made of it. It is a great favorite of that people; its flowers, both in the single and double state, are often pictured upon tea chests, screens, and various fancy articles from that country. Thunbergia fragrans, an interesting little climbing plant, had just opened a pure white flower.

But the richest production in this department was a splendid specimen of a species of Amaryllis; reginæ, or a variety of it, we believe, but not positive: the interior of its brilliant scarlet, lily-like flowers, are finely marked or striped with white. Another conspicuous plant which we very much admired, (its name we have forgotten, but think it was a species of Gesneria) appeared in perfection; the leaves broad, ovate, serrate, pubescent, opposite and alternate upon the stem, with tube-shaped, brilliant scarlet flowers. Among the many curious and ornamental tropical plants we noticed, with no little interest, a good stock of pine-apple plants, in different stages of luxuriant growth. Little or no attention has as yet been paid to the cultivation of this luscious fruit in this region; but we see no reason why there should not be pineries as well as graperies, and presume that ere long they will be considered indispensable to every large establishment. We did not pay particular attention to all the various apartments of this extensive range, but learned that, with the exception of those we visited, they were principally devoted to grapes and peaches.

Behind the conservatories, is a range of forcing pits, built in the most substantial manner. Time did not permit us to look at them.

At Col. Perkins's hot-houses, &c., we saw in successful operation an apparatus for heating for horticultural purposes. Its utility has been tested by the experience of several winters. In a letter to Gen. Dearborn, published in the New England Farmer, for June 1, 1831, (vol. ix. p. 362), Col. Perkins has himself given the following notice of this apparatus: —

"The boiler and reservoir are of cast iron, containing each about eighty gallons. Their diameter is about three feet, and their depth twentytwo and a half inches. The house is eighty feet long in which they stand; the boiler at the east, and the reservoir at the west end; of course the length of the pipes that connect them is about seventy-four feet. These pipes are introduced or open into the kettles as follows, viz. — the upper end of the upper pipe is within three inches of the top of the rim; and the under edge of the under pipe is a little below the perpendicular or straight line of the side of the kettle, which brings it (as the lower part of the kettle is somewhat dishing) within two or three inches of the bottom.

"The pipes are of cast iron, four and a half inches in diameter within the bore, but the exterior of the pipe presents a surface of sixteen and a half inches, making in the two pipes a surface of thirtythree inches. These pipes are laid perfectly horizontal; of course when you fill your boiler, you fill your reservoir in the same degree; the proper point, when filled for operation, being an inch above the upper edge of the upper pipe. The pipes are computed to hold about 115 or 120 gallons of water, which, together with that contained in the two kettles, when filled to the proper height, say 140 gallons, makes 250 or 260 gallons of water to be heated before the full effect of the apparatus can be experienced throughout the house."

In the New England Farmer, vol. x., p. 156, are statements of improvements in Col. Perkins's apparatus, consisting chiefly in placing two upper pipes and one under pipe, in which the water circulates. In this, Col. Perkins explains the principles and advantages of this mode of heating, as follows:

"*The expansion of the water by heat*, drives the water from the boiler through the upper set of pipes into the reservoir, and from thence it is taken by the lower set of pipes again to the boiler, where it is heated, and is thus perpetually circulated, giving an equable heat, competent to the warmth required. The advantage of this mode of heating, over flues or steam apparatus is great; in flues, the fires must be carefully kept up through frosty nights, or your plants are in danger; with steam, though the heat is soon *up*, yet when the water is below the boiling point, the heat is soon *lost*. With hot water, not above 190 deg. Fah., left by the gardener at 8 o'clock in the evening, heated by anthracite coal, and with the dampers nearly closed, the state of the house, if ordinarily tight, will be found in the morning within a few degrees of the state in which it was left twelve hours before. This mode of heating houses was suggested and put in practise first by Atkinson, from whom I had my watering plans and suggestions. It is said they have been improved upon by Tredgold.* I have seen Atkinson's plan most successfully operated upon by gentlemen both on the continent and in Great Britain. There may be improvements; I know of none which I think such. It is thought one fire will heat the length of a house of seventyfive feet, of moderate height. The house I have heated is fiftysix feet, and the length of

* A description of Mr Atkinson's plan, and improvements by Mr Tredgold, furnished by S. G. Perkins, Esq., is given in vol. x., p. 161, of the New England Farmer.

the pipes 150 feet, being two upper and one lower pipe, and my pipe returned double on the ends of twenty feet, making the whole length 190."

The foregoing may serve to show the principles of hot water apparatus, now common and much approved of in Great Britain and some parts of continental Europe. Messrs Winship, at Brighton, and Mr Cushing, at his fine horticultural establishment, in Watertown, have hot-houses heated with hot water, by apparatus made and conducted on the same principles. At Mr Cushing's were several sets of pipes, boilers, &c. in operation, and giving the atmosphere of June in December to several extensive ranges of greenhouses, where beautiful and magnificent exotic plants were flourishing in all their native luxuriance.

We likewise saw at Mr Cushing's, agricultural improvements, buildings, imported stock, &c., worthy of a more minute description than we are able at this time to present. A large Dutch granary, or corn-barn, standing on tall pillars, gave not only a store-house for grain, safe from the intrusion of vermin, but beneath it, and under the pillars which supported it, was a convenient place for the deposit of leaves for manure, of which there were large quantities preparing for use. A root-house, with an apparatus for steaming, fitted according to the best modern improvements, added much to the economical accommodations of the farm buildings. Fine cows, of the most improved imported breeds, Ayreshire, Durham short-horns, &c., were reposing on beds of leaves, and by their sleek and glossy appearance, and apparent health and high condition, gave evidence of the care and judicious management of their attendants. A more minute account of this place would be very acceptable, and we hope, hereafter, to furnish it for the benefit of cultivators who wish to trace and profit by the progress of improvement in the principal branches of rural economy.

Art. II. *Bread Corn and its Substitutes, considered as the Staff of Life.* Communicated by Mr William Kenrick.

Granaries. Bread has been justly denominated the *staff of life;* and corn is a term, which, by the European nations, is applied indiscriminately to every variety of grain which is used in the preparation of bread. But, with us, the term corn is applied almost exclusively to

maize or Indian corn. This plant is a native of the tropical countries, but produces good crops as far north as latitude 44 or 45 degrees, in the States which border on the Atlantic shores.

Wheat and rye, which are found growing wild in Tartary and Siberia, are cultivated even to the borders of the tropics; but rice is a tropical production, now naturalized in the temperate regions, its native country being Ethiopia.

Egypt in ancient times appears to have been the great store-house of the earth for bread. In Egypt, and in the times of Jacob, vast public store-houses or granaries were provided in all the chief cities of the country, and in these, during the years of great plenty, the corn was laid up to serve as supplies in the years of famine.

Dearths in the land of Egypt were produced by several distinct causes; or sometimes by a combination of two or more of them. Sometimes, by excessive and long continued drought, or by some unusual depression of the rivers at unwonted seasons. Sometimes, by reason of prodigious swarms of locusts, which there at times, as recorded in Scriptures, "covered the face of the whole earth, so that the sun was darkened, * * * and there remained not any green thing in the trees, or in the herbs of the field, throughout all the land of Egypt."

Egypt lies between the latitudes of about 23½ and 32 deg., and is indebted for its very extraordinary fertility to its warm and genial climate; but still more than all, to a soil fruitful beyond measure. The great river Nile, which takes it rise in central Africa, after traversing various countries and kingdoms, descends with its mighty waters through the whole extent of Upper and Lower Egypt, until it enters the Mediterranean sea, 2000 miles from its sources. In those interior countries, which all lie within the tropics, it rains incessantly during several successive months. These excessive rains are the causes of the annual rise of the river, and the consequent inundations which cover the whole of the land of the Delta, or Lower Egypt. When the waters of the Nile retire to their banks, they leave on the whole country which had been overflown, the rich alluvial deposit. Wheat and barley yield profusely; also rice and maize; and two or three crops are annually produced on the same ground. These are the combined causes of the amazing fertility of the soil, and of the surpassing riches and renown of Egypt.

The ancient history of that country is lost in obscurity; yet the remains of the ancient works, and of all that is wonderful in Egypt,

incontestably announce the existence of a former and mighty people, and a mighty empire.

Nor need we so much wonder; since the people of such a country, and where every needful want and the means of subsistence are so easily acquired, must necessarily have abundance of leisure. Nor need the people repine who inhabit the countries possessed of less favored climes, and of less exuberantly fertile soils, since the very causes of such unsurpassed fertility are the most destructive to human life.

Other plants have been found in tropical, and in other and different regions, which subserve to the inhabitants of those countries as the staff of life, and are equally useful to them as bread. In this class, we enumerate the following.

The Potato. The most important plant of all hitherto known and tried by the inhabitants of the temperate climates, is the potato: inasmuch as the potato produces, on an equal space of ground, so many more times the amount of farinaceous and wholesome food for the subsistence of man, than can be obtained from wheat, or Indian corn, or any other variety of grain.

The potato was introduced to Europe through Spain, from South America, and in 1553 it was by some called *Papas;* and since its introduction to Europe, millions have been added in consequence to its population; and those dreadful famines are prevented, which formerly were of such frequent occurrence. The potato was introduced to Ireland by Sir Walter Raleigh, in 1586, and soon after to England. And Ireland, according to the late Mr Barrow, contains double the population which it would have done, but for the introduction of the potato. A valuable and highly nutritive starch is prepared from the potato; and this, by a certain process, is converted into sugar.

Plantain and Banana. — The Plantain and Banana are herbaceous perennial plants of the same species, which differ somewhat in appearance, but are yet sometimes confounded. Dampier has called the plantain, "the King of Fruits." Some assign the nativity of the plant to Guinea, and some to the East Indies, and Egypt. The plantain rises with a soft, herbaceous, conical stalk, fifteen or twenty feet high, with leaves issuing from the top, six feet long and two broad. The fruit is produced on its summit in spikes, which sometimes weigh forty pounds.

The fruit is of the size and form of the cucumber but pointed at both ends; pale yellow, soft, sweet and luscious. It is used for tarts,

sweetmeats and confectionary. Also roasted, or broiled, or boiled, with salt beef, and salt fish or pork ; it is preferred to bread.

Dr Wright has stated, that the island of Jamaica would scarce be habitable without the plantain, as no species of provision could supply its place. A plantation affords a succession of fruit for a whole year.

The *Banana* is shorter and rounder than the plantain. It is more mellow, and is eaten raw or roasted, in fritters, preserves, or marmalade; and the fermented juice affords an excellent wine. M. Humboldt has calculated, that the same ground which will produce four thousand pounds of bananas, will only produce thirtythree pounds of wheat, and ninetynine pounds of potatoes.

Arrow Root. — The Arrow Root, or *Maranta*, is a native of South America. The roots are tuberous and jointed. They produce a starch, one of the most nourishing of vegetable substances. A plant extremely productive; as two small tubers produced twelve bushels in two seasons, at St Helena. This plant will flourish in the Southern States.

Bread Fruit. — The Bread Fruit Tree is a native of the South Sea Islands, where it grows to the size of the oak. The fruit is round, the size of a melon, the skin covered with protuberances. The inner part is of the consistence of new bread, and as white as snow. It is roasted before it is eaten, and is of a slightly sweet taste. Two or three bread fruit trees will suffice for a man's yearly supply. There are several varieties, one of which is called *Jaco tree.*

Cacao, (*Cacao Theobroma.*) — The chocolate tree is a beautiful tree, sixteen to twenty feet in height, resembling the cherry tree in its form and leaves; a native of South America and of Mexico; it is splendid when in bloom. The fruit is an oval pointed pod, enclosing from ten to thirty compressed nuts, an inch in diameter, enveloped in a sweet and refreshing pulp. The nuts when roasted and ground, are moulded into chocolate cakes, a highly nutritious, wholesome, and delicious food. In France, small cakes of chocolate, sweetened with sugar, and of various fanciful forms, are prepared for eating. They are a portable food, of a nutritious quality, and delicious taste, and in great demand. Napoleon, on his retreat from Moscow, was once preserved from dying with hunger, by a few of these cakes which he carried in his pocket. Bryan Edwards, in his History of the West Indies, relates the case of a negro in Jamaica, who died at the age of 120; the last thirty years of which, he had lived on chocolate.

YAM, (*Dioscoreau.*) — The yam is a climbing plant, a native of the East and West Indies. The roots are very large, sometimes enormous and flattened in form. It is boiled or roasted like the pototo, and is a wholesome, nutritious, and palatable food. The flour or starch is used for puddings and for bread.

SWEET POTATO, (*Convolvulus batatas.*) — The sweet potato is a perennial, a native of the Southern States; a creeping vine. The roots are long tubers of a sweet, agreeable taste, when either boiled, baked, or roasted; and a nourishing and wholesome food. It is raised near Boston, from slips procured in New Jersey. These are started in a hot bed, and planted two each in an elevated hill, in a dry, warm situation, and rich soil. The hills should be six feet asunder.

BREAD ROOT, (*Psoralea esculenta.*) — The bread root, is a native of Missouri; a perennial plant, which, with cultivation, produces abundant crops. Its roots are eaten like those of the potato.

OXALIS CRENATA. — An ornamental plant from Chili. The flowers are in umbels, of a yellowish color, and beautiful. The stalks are succulent, acid, and are used as salad. The roots are tubers, and produced in clusters, and when boiled, they resemble a chestnut, and are superior in taste to the potato, and as easy of cultivation. This root, which is extraordinary productive, may be stored in cellars during winter.

ARRACACHA. — The arracacha is a native of South America, and is cultivated at Santa Fee and Caraccas. It is said to flourish best in the elevated regions of mountains, where the medium heat does not exceed 69°. Its main root divides into four or five large prongs; it is light, starchy, and wholesome. Neither this nor the two preceding plants are known to be cultivated with us.

Public granaries, as we have seen, are of very ancient date in Egypt; and some have supposed, that the ancient catacombs were originally designed as the vast depositories for the superabundant grain, rather than as mansions for the dead.

In Bishop Heber's travels in India, which have been lately published, I have found an account of a granary of an extraordinary kind, which he saw at Bankipore, a place in the interior, near the banks of the river Ganges. It was a high building, resembling a glass house, with a staircase winding round, from the bottom to the summit, and somewhat resembling in appearance the old prints of the tower of Babel. It was built for the granary of the district, in conformity to a law, which was made in consequence of a famine, which occurred

near fifty years ago; and to mitigate or prevent a repetition of the like calamities, at a future period. The grain was poured in at the summit, and drawn out at the bottom. At the time the Bishop saw it, it had been emptied for some years; either from neglect or repeal of the law, or defect in its construction, or other causes, and had not long before been used as a powder magazine.

The plan appears to be original; the floor should be elevated to the height of a story from the ground, and the grain may be drawn out at the bottom from numerous openings. Several times during each summer season, and in clear, dry airy days, the whole contents of such magazines should be drawn out, and winnowed, and carried up by suitable machinery to the top; the whole being effected by the aid of the wind or other power. The middle should consist of a circular area and staircase, lighted from the centre above.

Public granaries for the relief of the poor in times of want, and of famine have been established and remained self-supported; and their beneficial effects have been felt for ages.

A benevolent citizen of Berne, in Switzerland, having often viewed the privations to which the poor were subjected, in times of dearth, made provisions in his will, for the purpose of constructing an edifice, and endowing it with funds, for the relief of the poor in times of famine or scarcity; a part of the edifice to be appropriated as a hall, to the use of the municipality of the city of Berne, in their public meetings. The cellars were to be appropriated for the reception of wine, and the spacious rooms contained in the several stories above, were for the granaries. Whenever the price of grain or of wine was one quarter *less* than the average price, of the preceding ten years, then the granaries were to be filled with corn, and the vaults stored with wine; and whenever either the price of corn or of wine, had risen *one fourth above* the average price, for the preceding ten years, then the grain or the wine was to be sold to the poor, *at the average price;* and in the proportion of half a pound of the former, and a pint of the latter, for each member of such families per day. This benevolent institution, which was founded more than a century ago, has continued as my account states, in full and successful operation to the present day.

Granaries should be constructed in dry, elevated situations. They should admit of ventilation, and once or twice during summer, the whole grain may be moved and aired by a winnowing machine; this should be done in dry, airy days.

Granaries, or public magazines, should be established at the public charge in all those countries, which, either from a vast and dense population, or from any other cause, are liable to suffer at times the horrors of famine. These would serve to alleviate the distress of the husbandman, in those years, when, from the superabundant harvests, corn had become a *drug*, no longer bringing a remunerating price. In such times, the presence in the market of a public benefactor, and customers so able, and a withdrawal of a portion of the superabundant stock from the present consumption, would elevate at once to a better standard, the price of what remained, and have an effect, salutary and encouraging to the husbandman, by relieving him from want; thus operating as a perpetual bounty, and a guarantee, that the reward for his labors would never be lost.

When such national depositories have once been completely established and filled, they would be capable of sustaining themselves for ages with no additional aid from the public; or, even with good management, they might prove the sources of public revenue.

The providing a resource for the poor in time of need, being a duty which must always devolve on the public, — and public provision being thus made and provided in times of great plenty, and at the cheapest rate, as often as the price of corn should rise to a certain degree or point, *above* the average price, then the public storehouses should be opened at once to all the poor, who should be entitled to draw from this resource, daily, a certain allowance for themselves and their families, for which they should pay but the *average price*, or the average of years.

It has been the remark of eminent political economists, that when the average crops of grain or bread stuffs, which are raised throughout a country and all its dependencies, are *one fourth greater* than the average crops of years, the price usually falls in consequence, not merely one fourth, but more usually *one third, or one half.*

On the other hand, it has also been remarked, that when the average crops of grain of a country, and of all its dependencies, are *one fourth less* than the average production of years, the price is usually enhanced in consequence, in a far greater proportion, or nearly, or quite to fifty per cent above the average price of years.

With the mass of consumers, from their long established habits, the quantity of bread stuffs, or of corn consumed, is not reduced or altered from transient causes or in seasons of scarcity, but continues the same, until the time of famine comes.

Nonantum Hill, Newton, Jan. 15, 1836.

ART. III.—*On the Selection of Hardy Herbaceous Plants, suitable for Ornamenting the Parterre, Border or Shrubbery.* Communicated by Mr JOSEPH BRECK.

(Continued from page 27.)

THE annual Larkspurs are known to all; some of the species form one of the most common ornaments of the garden. A bed of the double dwarf rocket (Delphinium ajacis) in all its varieties of color, equals in beauty a bed of hyacinths, while the tall branching sorts (D. consolida) greatly enrich the borders, when sown in masses; the different varieties of white, purple, blue, pink and variegated distinct from each other. The single varieties are handsome, but the double sorts, elegant.

The perennial species are not so common, but deserve to be more generally known, not only on account of their beauty, but also for their hardiness and ease of cultivation.

The botanical name Delphinium, is from a Greek word, "a dolphin, on account of the resemblance between the nectary of the plant and the imaginary figure of the dolphin."

It belongs to the class Polyandria, (many stamens), order Trigynia (three pistils), varying, however, from three to five. Natural order Ranunculaceæ.

The character of the genus is a five petaled corolla, destitute of a calyx, with a bifid nectary, cornute, (horn shaped.) (The nectary is the part of the flower producing honey. The term is also applied in certain instances to any internal supernumerary part of the calyx or corolla;) in this case it applies to a portion of the corolla which projects behind in the shape of a horn. Siliques (seed vessels) one to three.

Delphinium grandiflorum. (Great flowered.) One of the most showy of the genus, sporting into many varieties. Its height is from two to three feet, and continues to give a succession of flowers from June to October; which are large, of a fine blue, purple or white, double and single, and often spotted or shaded on each petal with copper color on the dark varieties, or with green on the white. Leaves palmate, (hand shaped) many parted.

It is propagated by dividing the roots in the spring, about the time it begins to vegetate, or it may be divided with success in August. By sowing the seed, new varieties may be expected, which if done early, will flower in autumn. Nothing is more pleasant than to

originate a new variety. It must not be supposed, however, that there will be much chance short of a hundred plants. It has flourished with me in a variety of soils; it will, in fact, grow anywhere without difficulty, only requiring to be divided every few years, when the roots become large. It is said to be a native of Siberia and of course must be hardy.

Delphinium sinensis pleno. Double Chinese. This is one of the most magnificent of herbaceous plants. It can be propagated only by dividing the roots, as it does not produce seed; it is perfectly hardy, enduring the coldest weather without protection; it is best to give a little, however, as it will flower stronger for it. The flowers are of a most beautiful lively blue, in long open spikes, upon graceful, slender purplish stems, three feet high. From June to October it displays its beauty, and is indispensable in the formation of a perfect bouquet. Foliage palmate, many parted.

Delphinium elatum. (Upright.) Bee Larkspur. So called on account of the bifid termination of the nectary in the centre of the corolla, in connexion with the anthus having a fancied resemblance to a bee.

This species from its height, which is from four to six feet, is well adapted to the shrubbery; its long clustered spike of fine blue flowers making a fine appearance in that department. It is also suitable for the border, but should be planted at the greatest distance from the walk. Leaves downy, five lobed; lobes cuneate, (wedge shape) at the base, trifid cut. Propagated by seed or divisions of the roots.

A florist may perhaps prefer the double varieties to the single; but the botanist will differ from him, as the character of the flower is destroyed by its monstrosity, the nectary being converted into petals, as are the stamens in many cases.

There are many other species equally worthy of a place in the pleasure grounds, — which have not yet found a place even in our botanical gardens, that are very desirable. Among the number is D. puniceum, with scarlet flowers, from Siberia; D. ochroleucum, with pale yellow flowers, from Iberia; D. azureum, with light blue flowers, from Carolina, six feet high; D. tricorne, D. exaltatum, dark blue, indigenous to N. America, with numerous other species from Siberia, mostly with blue flowers.

As an ornamental annual, few exceed in point of show *Coreopsis tinctoria.* The only objection to it is, it makes itself too common, and has thereby acquired the name of Nuttall's weed. It was he who

introduced it from the "far West," where he discovered it in rich profusion in the Arkansas territory, near the Rocky mountains. Some of the improved varieties are elegant. The flowers generally are of a fine orange yellow with a brown centre; in some varieties the flowers are much larger, the rays of which are only bordered with orange, while the remainder with the disk is rich dark brown. Common as it is, it will always be considered as one of the standard ornamental annuals.

For elegance, none of the perennial Coreopsis can be compared with this; yet some of them are more desirable, as they are easily kept within bounds, producing little or no seed by which to extend themselves. The genus is mostly North American, and with the exception of a few species, produce yellow flowers; all those about to be described are perfectly hardy, requiring no protection whatever.

It is said by Nuttall, that there is a species in the open swamps of New Jersey, of low growth, narrow leaves, and rose-colored flowers; but I have never seen it in any collection. C. rosea, of Eaton, answers to his description; he does not say whether an annual or perennial.

"Coreopsis is from Greek words, signifying a bug and resemblance. Its seed is convex on one side, and concave on the other; it has a membranous margin, and it has two little horns at the end, which give it very much the appearance of some insect."

It is found in the class Syngenesia, (the union of the anthers, which the Greek name implies). The flowers are compound, stamens five, united by their anthers. Order, Frustranea, (florets of the disk, fertile; of the ray, sterile). Natural order, Compositæ. One of the most extensive and well defined classes of the Linnæan system, and remarkable for displaying their flowers in autumn. The genus Coreopsis is characterized by having a double calyx; each of many leaves, the exterior shorter and green, the interior equal, partly coriaceous, (leathery) and colored. The receptacle (that part of the fructification which supports the other parts) producing flat, chaffy scales. The seeds compressed, emarginate, and often bidentate (having two teeth).

Coreopsis lanceolata, is a fine species with lanceolate leaves, producing a profusion of large, rich yellow flowers upon long peduncles, (flower-stems), which begin to open in June, and give a continued succession until late in autumn; height about two feet. This is almost the only perennial which produces yellow, compound flowers so early in summer. A small root planted in April will make a large

plant by autumn. All the species are propagated by dividing the roots. They flourish in moist soils, but I have found them most luxuriant in a deep black loam inclining to moisture.

Coreopsis verticillata. Leaves verticillate (given off in a circle round the stem), opposite, sessile (without footstalks), ternate (in threes), or quinite (in fives): leaflets linear lanceolate, entire: rays of the flower acute, pale yellow: disk, or centre, dark brown. The flowers have a peculiar star-shaped appearance. It is said the florets are used to dye cloth red. It is a handsome shrubbery or border plant, continuing from July to October in bloom.

Coreopsis tenuifolia. Slender leaved. The foliage of this species very much resembles the last, with this difference, it is much more delicate and finer. The flowers are of the same shape, a deep shining yellow, having its disk also yellow; not more than a foot high; in bloom July and August. A handsome plant, suitable for the front of the border.

Coreopsis tripteris. Three leaved. A tall, handsome plant, suitable for the shrubbery, six feet high. Leaves on the stems in threes; lanceolate, entire; radical ones pinnate; flowers yellow; from August to October.

Coreopsis grandiflora. Great flowered. The flowers are not so large, however, as C. lanceolata, or so handsome. Its habits are different from the other species, having creeping roots, which throw up in every direction stems not more than one foot high, with compound, much divided leaves; leaflets linear. As an exception to the other species, this is somewhat tender, and requires protection.

There were as many as thirty species formerly included in this genera; all of which are more or less ornamental and suitable for the shrubbery or border. Latterly, some of the species have been distributed among the genus Actinomeris, Simsia and Calliopsis. In the last, C. tinctoria is now arranged.

One of the most obtrusive shrubby plants to be met with in waste ground throughout our country is *Spirea tomemtosa,* known by the common names of steeple bush, purple hardhack, &c., with purple flowers in crowded, sub-panicled spikes. However unacceptable this troublesome bush may be to us, it is named as being ornamental in England. Many species of the shrubby Spireas are prominent ornaments of our shrubberies, as S. opulifolia, S. hypericafolia, and S. sorbifolia; but the most desirable of all the family are some of the herbaceous sorts. "Spirea is from Greek, and signifies a cord.

Spirean is Pliny's name for a plant, the blossoms of which are used in garlands. That plant is thought to have been the Viburnum lantana." The flowers of S. hypericafolia are arranged the whole length of its flexible branches in sessile umbels, so as to form beautiful garlands of white, contrasting finely with its green, obovate leaves, which make a good back-ground to its snowy blossoms. To this species and some others the name is appropriate. This genus is found in the class Icosandria, "which by interpretation is" twenty stamens; their number, however, is so variable that upon these the class is not founded; but upon their position, which is on the calyx. Order, Pentagynia (five pistils). Natural order, Rosaceæ. Character of the genus, calyx spreading, five cleft; petals five; capsules one celled, two valved, opening inwards, one to three seeded.

Spirea ulmaria plena. Double Meadow-sweet. This most beautiful plant should not be wanting in the smallest collection. It is a native of Britain, and an improved variety of the single species. A large mass of it is very imposing; its fine double white flowers in proliferous corymbs, on erect stems two feet high, have the appearance of snow. From June to August. Leaves pinnate, downy beneath; the terminal leaf larger, three lobed; the lateral ones undivided. This and most of the species succeed best in a strong, moist soil, and are equally hardy, enduring the severest winter without protection. A variety has variegated leaves, which is not so common.

Spirea lobata. Lobed Spirea. A beautiful species, indigenous to some part of the country, but not in New England. Flowers red or deep pink, in proliferous corymbs; two feet high. It is not so long in bloom as the last species, but fine in its season, July. Leaves pinnate, glabrous (smooth); the odd leaf large, seven lobed; lateral ones three lobed.

Spirea filipendula. Drop wort. A very elegant species, a native of Britain, with tuberous roots like the Pæony. Flowers white, in corymbs two feet high. From June to August. Leaves pinnated, leaflets serrated; the foliage is beautiful.

Spirea filipendula plena. Double Drop wort. More desirable than the last, of which this is a variety; appearance the same, except the flowers are double, and not quite so tall a plant. Flowers continue through the season. The tubes should be divided in August, or early in the spring. The two last increase slowly, while the two first described extend themselves a little too fast.

Spirea aruncus. Goat's beard. From Siberia; three or four feet

high, with white flowers in panicled spikes, in June and July. Leaves supra decompound. There is an indigenous variety very much like it, var. Americana, with very long slender spikes.

Spirea trifoliata, is now attached to the small genus Gillenia, and with much propriety, as the most casual observer will at once perceive. It has but very little resemblance to the Spirea family; having a tubular campanulate calyx; its pink and white flowers more solitary and much larger, with a leafy appendage at the base of the peduncles, technically called stipules, which are linear; two feet high; June and July; leaves in threes. A very pretty North American plant, equally hardy and as easily cultivated as the Spireas.

There are some species and varieties not found in our collections, very desirable. Each new hardy, herbaceous or shrubby plant must be considered by every lover of flowers an important acquisition. It is to be hoped, then, that the following will soon be added: S. palmata and S. digitata, with red flowers. S. filipendula, varieties minor and pubescens. S. ulmaria, varieties denuda and tomentosa, with white flowers.

"Lychnis, from a Greek word, signifies lamp, in allusion to the cottony leaves of some species, which have been used as wicks to lamps." This ornamental genus includes the old one, Agrostemma, which is now abolished. It belongs to the artificial class Decandria (ten stamens). Order, Pentagynia (five stiles). Natural order, Caryophylleæ. Its generic character is an oblong, one leaved calyx; petals five clawed, with a nearly two parted limb; capsules five celled.

Lychnis chalcedonica is common in most gardens, and frequently known by the name of London pride; a native of Russia, well known and much esteemed as a border flower of easy culture; freely propagated from seed and division of the root. The flowers are brilliant scarlet, which makes it more valuable, as comparatively few of that color are to be found among hardy herbaceous plants. One of the most splendid decorations of the border is the double variety; not common except with the amateur or florist. It is propagated only by divisions of the root, or cuttings of the flower stem, and requires some care to prevent it from returning to the single state. "The cuttings may be taken off at any time when the shoots are tender and planted in a sandy loam, in a warm situation, but shaded and covered with a hand glass. When well established, they may be transplanted into the nursery department, or where they are finally to remain, and will flower strongly the next year."

There is also a single and double white variety. The double

white is still more rare than the double scarlet. All the varieties do best in a light, rich, loamy soil. It is necessary to take up and divide the roots every other year, or they will dwindle away. The best time to do this is early in the spring. A light protection is necessary to the double varieties, to insure a vigorous bloom. The flowers are fascicled (collected in bundles), level top or convex; two feet high; in June and July. The double varieties do not grow so luxuriant, and continue to give flowers until autumn.

L. fulgens, (splendid), is a hardy species from Siberia, with scarlet flowers; one foot and a half high; not common with us.

L. coronata, is a shewy species from China. The flowers are large, solitary, terminal and axillary, red, the petals torn; one foot and a half high; calyx rounded, clavate (club-shaped), ribbed, smooth. Unfortunately, this beautiful plant will not stand our winter in open ground; it therefore requires to be taken up and potted in autumn and protected in the house or frame. It thrives and flowers abundantly most of the season if planted out in the spring. It may be raised from seed or cuttings.

L. floscuculi. Ragged Robin. This is an old inhabitant of the flower garden, a native of Britain. The double variety is deservedly esteemed, is very ornamental, easy to cultivate, and flourishes in any common garden soil. It is propagated by divisions of the root. Flowers fine deep pink, dichotomous, fascicled; calyx campanulate, ten ribbed; petals torn, with an appendage.

L. viscaria with pink; *L. diurna*, with purple; and *L. vespertina*, with white flowers, all natives of Britain, are said to be handsome border flowers in their double varieties, but not much known with us.

L. coronari, formerly Agrostemma coronaria, is too well known under the name of Mullen Pink, to require a particular description. Its curious, downy, mullen-like leaves, with fine red flowers upon its dichotomous (forked) stems, and hardy habits, will always give it a place in the border among plants more rare. The varieties with white, red and white, and double red flowers, are also handsome, but not so commonly met with. The old plants are apt to die. New plants from seed should, therefore, be in progress of the single varieties, which are easily raised. The double must be propagated by divisions of the roots.

L. flos Jovis, or flower of Jove. It has red flowers, in umbellate heads; not so showy as some of the species, but worthy of cultivation on account of its remarkable downy leaves.

(To be continued.)

ART. IV. *The Planter's Guide; or, a Practical Essay on the best Method of giving immediate Effect to Wood, by the Removal of large Trees and Underwood; being an Attempt to place the Art and that of general Arboriculture, on fixed and phytological Principles; interspersed with Observations on general Planting, and the Improvement of real Landscape. Originally intended for the Climate of Scotland.* By SIR HENRY STEUART, BART., LL. D., F. R. S. E., &c.

(Communicated for the Horticultural Register.)

THIS work treats generally of the removal of large (forest) trees and underwood, but especially of the best method of giving immediate effect to woods. It enters with minuteness into the subject of transplanting trees, and of the subsequent care and management of them, whether detached or in plantations, in close or open dispositions. The whole treatise, though voluminous, extending in the American edition to a portly octavo, is valuable, and will repay a careful reading. The style of the work is also exceedingly simple and pleasing. In short, it is obviously the production of a highly cultivated man, and, at the same time, one possessed of a vast deal of practical information relative to the subject which he has undertaken to discuss.

According to Sir Henry Steuart, the first point to be considered in the removal of trees is the selection of the plant or subject. It should be at least from twentyfive to thirty feet high, with a girth of at least fifteen inches; endowed with those qualities that manifest health and vigor, and that will best enable it to shoot rapidly in an exposed situation, such as lawns, parks or other open grounds. These qualities he denominates the *protecting properties*. They consist in a thick, hard bark; a thick and stout stem; a wide spreading, well furnished and well balanced head, with branches growing, relatively to the height of the tree, near the ground, and extending equally and uniformly in all directions. These are the only subjects this experienced planter considers fit to be selected in order to insure a speedy and certain success.

The American reader will at once perceive that there are very few trees of this description in this country, or, indeed, in any other, unless originally planted by the hand of man in situations where the light and air could freely penetrate to all sides. Some trees may have been left accidentally in pastures or along boundary lines, but naturally they do not grow detached. On the contrary, they grow in close woods. And even where they succeed in suffocating the underwood,

they do not possess a single property which Sir Henry Steuart considers indispensable for a successful removal. They have a tender and smooth bark, a long, slender stem, few lateral branches, and a head ill furnished and of irregular shape. Take, for example, one of our forests, (or, as we call it, a wood) consisting of the gray, red, and one or two other kinds of oak, with an occasional hickory, white pine, maple, and perhaps a chestnut. These trees, standing within a few feet of each other, and starting at the same time, struggle upwards literally for a ray of light and a breath of air. The growth is, therefore, not only irregular — for the different varieties advance with different degrees of rapidity — but the developement of the plant is necessarily imperfect.

The finest trees we have in this part of the country, are probably those aged white oaks that occasionally and accidentally have been left in some of our ancient pastures. A tree of this description, if seated in a tolerably propitious soil, will be found to be fully and admirably developed, excepting always a slightly stinted vegetation on the north or stormy quarter. This is the only tree we have, which at all resembles the oaks of an English park ; and for the obvious reason that it is the only one which grows as they do. Now if any person will take the trouble to compare this pasture white oak with a tree of the same variety, and apparently of the same great age, growing in a close wood, not a property will be found in common either in the form of the trunk, or the arrangement of the branches. We have, it is true, in this part of the country, plantations of forest trees of many years' standing, but the trees in them, with hardly an exception, will be found to be totally unfit for removal, having no advantage whatever over the original forest trees, and growing, indeed, very much as they do.

But to return to the work. Trees growing in a close wood, the Scotch planter considers as endowed with what he terms the *non protecting properties* — or in other words, they are not furnished with such bark, branches and roots as will enable them to flourish in an exposed situation. They are, therefore, not deserving of a removal. As to the relative value of the protecting qualities, Sir Henry Steuart considers thickness and hardness of bark, stoutness and girth of stem, as of more importance than a copious supply of roots, and extent of branches as the least material. In other words, the ability of a tree to protect its own sap vessels, is the standard by which to determine the prospect of its success when removed. According to this view of the subject, it is therefore evident that a tree which has been growing

half a century in a sheltered and confined forest, will, when transferred to the open ground, gradually fail and ultimately perish.

We place great value on the remarks Sir Henry Steuart has made on the absolute necessity of selecting for removal only those trees that have been reared in open and exposed situations. We well know that plenty such can be obtained both in Scotland and England, for planting has been long and extensively pursued in both countries. But there are none, or very few indeed, here. The original forests having been extirpated, we have at length begun to plant, and in process of time we shall have trees fully developed, a sight that no forest can exhibit. Many thousand ancient trees assembled together in a vast wood, produce a sublime effect from their numbers, their size, the depth of shade, &c. They awaken deep, and to many, most pleasing emotions; but not on account of the beauty of the single trees. This is not the reason. On the contrary, the finest of those trees placed in a detached situation, would probably not produce a good effect.

In this connexion, we shall offer a remark or two as to the effect of shade on plants. All plants have their favorite soil, climate, and situation; but it seldom happens that more than two of these contingencies are united in the same. And though the greater part of plants, especially those of a low stature, are found in their native state growing to a great extent in the shade, yet we think it cannot be doubted that the same plants, when introduced to the full benefit of the light and air, will produce finer foliage, flowers and fruit. It is said that such and such plants, our beautiful laurels, for example, grow in their native condition in the shade. As to the literal fact, this is true; but at the same time, they get all the light they can. They perch themselves in the fissures of rocks, for the benefit of the leaf mould and moisture which there accumulate, and, generally speaking, under a deep and thick screen of leaves. Their progress is slow and feeble. But if it so happens that the trees about some of them have accidentally fallen or been cut down, a prodigious difference in the condition of the plants will be observed. Nature, we admit, is the rule and guide; but before we establish any given state as the natural condition of a plant, we should consider every circumstance attending it. Many now say that the Dahlia (a flower which, according to the laws of chemistry, requires more light to produce its colors in perfection than almost any other) should be grown partly in the shade: certainly not because this plant in Mexico is found on the north side of hills, and under a

dark and heavy foliage; for there the flower is not larger than a marigold. Still it is possible that at certain periods of the day, in July and August, our sun may act in a way too stimulating for the health of this plant. The same is probably true of every plant that grows in this climate, with the exception of Indian corn. There is at times a quality in the heat of the sun of that season of the year, not easily described, though readily understood by all that have felt it, which undoubtedly excites a greater action in the secreting properties of the leaf than the roots can supply. And no doubt, for the few hours of the duration of this heat, some sort of protection would be advantageous to a plant; but this is a very different thing from being placed habitually in the shade, or of being daily deprived of a large portion of the rays of the sun. Nature, we think, intended to screen the roots, not the foliage.

Having described the sort of tree Sir Henry Steuart considers as only fit for removal, we now come to the preparation of the soil in which it is to stand. This should be trenched sixteen or eighteen feet from the stem, in every direction, for a tree thirty feet high, and to the depth of eighteen or twentyfour inches. This soil should be thoroughly mixed with two or three horse-cart loads of a compost of lime and clay, or sand, or bog, according to the original quality of the soil. It is also desirable that the pit should be thus prepared one year previous to the transplanting. The tree also goes through a course of preparation, when the removal is executed in the best manner; that is to say, the roots are all cut round, by means of a trench, twelve or fifteen feet from the stem, one or two years preceding the removal, and a stimulating compost put above and about them, in order to induce them to throw out new fibres. These arrangements being completed, and the proper season having arrived, a suitable number of men, (at least six to a tree thirty feet high) get into the trench and begin to uncover the roots. Uncommon caution and delicacy are required for this operation, for one of the leading features in this planter's system is to remove the greatest possible mass and web of fibres and rootlets. This portion of the work proceeds slowly, for the principal part of it can only be performed by the hand, aided by a trowel or a sharpened stick. The roots being cleared and tied up in mats as the men advance towards the stem, a machine very much resembling the tongue and wheels on which large sticks of timber are moved in this country, is brought close up to the body of the tree, and lashed in the most open place to the trunk. The whole (tree and pole of the machine) is then pulled

down by ropes, either by men or a steady horse, and while drawn away, root first, is supported in a horizontal position by men stationed for the purpose. Such roots and branches as would strike the ground during the removal, are tied up. These, one would think, must be numerous, for the height of the axle tree in the largest sized machine, is only two feet nine inches. The tree is thus moved to its pit and planted.

The account of the above operation in the work itself, occupies many pages. We can only say, that Sir Henry Steuart treats many of the processes, particularly those that relate to the pulling down of the tree from its perpendicular to a horizontal position, and the tying up of the large roots and limbs, to prevent their being lacerated, as easy, simple and expeditious, which to us appear vastly hazardous and difficult. The whole expense of this operation, — the tree supposed to be moved one mile by two horses, and being thirty feet high, and fifteen or eighteen inches girth — is stated to be less than two dollars and a half, of our money. The Baronet gives the figures, and we have not a word to say ; — but we are perfectly sure that the same amount of work could not be done in this country, and with the same degree of care, for fortyfive dollars.

Sir Henry Steuart, states it as a fact established by his own experience, (and certainly it is an important one) that the tap root may be destroyed, not only without perceptible injury to the tree, but that it is often reproduced. We have no doubt this opinion is correct. A tap root is probably provided by nature for the purpose of sustaining the tree in a more effectual way, than a root shooting horizontally. In other respects it resembles other roots. If, therefore, a tree should be properly supported by roots extending horizontally, a tap root ceases to be necessary. We think, also, that in some cases, the existence of the tap root is accidental. In numerous classes it is not found at all, though the nature of the growth would seem to require it quite as much as in those in which it is observed. Besides, the tap root follows the quality of the soil. It does not, in every case, strike directly down, but is much diverted in its course by the nourishment it finds in its way.

Sir Henry Steuart claims the merit of having introduced a new system in the art of transplanting. We think it would have been more correct to have said, a most judicious and admirable application of the old one. With the exception of a single process, which we shall presently mention, it does not strike us that there is anything

new, certainly nothing original in his operations; — at least not since the days of Miller; — we believe, indeed, we may add of Columella. The Baronet is, however, very severe on the English gardeners for their system (as he calls it) of mutilating trees; — of cutting in or shortening the branches according to the curtailment unavoidably inflicted on the roots. This is done on the self-evident principle, that there should be no more leaves for the purpose of elaborating the sap, than the roots can supply. It appears to us that this practice is obviously required by the system now universally admitted, of the mode in which the leaf acts in furnishing food for the plant. The Scotch planter does not controvert this system. On the contrary, he professes to found his own practice on it; and yet he condemns with a good deal of harshness, the proceedings of the English gardener, who, having this theory before his eyes, or being taught by observation and experience, not only that there cannot be branches and leaves without roots and fibres, but, also, that there is a constant dependence of the one on the other, naturally, and, as we think, philosophically, adapts the amount and extent of the first, to the condition of the last. In fact, Sir Henry Steuart does the same thing. He says, in substance, take up all the roots, and leave all the branches. And he is right. But it is not always possible to do this. Then we say, that if the root sends the sap into the leaf, and the leaf elaborates this fluid for the nourishment of the tree; — if this is good philosophy, it is equally good practice, that the part of the plant above, should be made to suffer as heavily as that under ground.

The only new point in the theory of this planter is, that he reverses the weather side of the tree on removal. A wind between west and south west, is undoubtedly the prevailing one in this climate, but it is far from being a wind adverse to the growth of the tree. On the contrary, as this is the sunny side, the greatest developement of the plant will be observed in that quarter. The north, therefore, if not the stormy point, is at least the side where the greatest collection of moss will be observed, and the most feeble prolongation of branch, and the least ample show of spray. The object of this planter in placing the most healthy side to the most unfavorable quarter, is to produce an equilibrium in the branches; — but even if this consequence should follow, it is evident that in a few years the equilibrium will be again destroyed. But if a tree does grow most luxuriantly on the warm quarter, is the bark better prepared to bear exposure to the cold point? The same may be said of the buds. The climate of

the tree is, in fact, changed. This arrangement appears at variance with the great principle of the system, that a tree should be so reared, as to have the ability to protect its own sap vessels.

The author calls his system the preservative one. Whether entitled or not to the compliment of the name, we think his work a very valuable one. He is obviously a very intelligent man. But if any person thinks that after reading this book he can proceed at once, and ornament in a single spring, the grounds about his house, with oaks, elms, maples, and other forest trees, thirty or forty feet high, at the rate of five or six dollars apiece, we can only say that the next spring will show that he has fallen into a woful error. The axe of an American laborer will soon clear away a wide wood for any man, but to remove and replant even a small portion of it, whether detached, in groups or in belts, will be found to be a work of prodigious care and expense.

The average height of the trees removed by Sir Henry Steuart appears to have been thirty feet, with a girth a foot from the ground of fifteen or eighteen inches. This is a good size, fit in fifteen or twenty years to make a fine tree; but it would never strike any one as being large. Yet trees even of this size, growing in open and exposed situations with well balanced heads and other properties considered by this planter as indispensable, are very rare in this country, at least in this part of it. Our oaks, &c. not only grow in close woods, but on land of which a large proportion consists of ledges of rock. The tree itself is therefore unsuitable, and it would be next to impossible to raise it with any tolerable share of roots. Indeed, we doubt very much whether three hundred trees of the sorts we have mentioned, suitable for transplanting according to the system of Sir Henry Steuart, and of an average height of thirty feet, could be found within ten miles of Boston. Therefore, as to applying this system on any scale beyond the removal of a few trees from one part of a person's grounds to another, our first objection is, that the trees do not exist. In the second place, even if found, they will be scattered about, miles from each other. It will then be necessary to drag them out of pastures or woods and along narrow town roads, where, from the bushes on the sides and apple and other trees projecting beyond the walls, it would be often difficult to move them with safety to the roots or branches, and always laborious and expensive. We say nothing of the cost of the various and numerous operations belonging to this system, none of which can be omitted, provided we

seek that success which appears to have followed the removals conducted by the author.

We have known trees from twentyfive to thirtyfive feet removed, generally, however, a short distance, and they have lived, but that is all that can be said for them. It takes such trees many years to recover from the effects of the removal, if they ever do it. Usually they have at least two thirds of their roots cut, mangled, or broken off, and an equal share of their tops lopped away. It is, therefore, out of the question, that a very serious if not fatal mischief should not be done to them. Trees thus wrenched out of the ground at such a vast sacrifice of roots, can never enjoy either a healthy or vigorous vegetation. They may annually make a tolerable show of leaves, and carry them tolerably well for several years, but they never fully recover from the shock, and at last fall into a decline and prematurely perish.

We have only to add, that in our judgment, the rules of the Scotch planter, are, with a single exception, excellent; and that those persons who desire to possess healthy and handsome trees should never venture on a larger size than they can remove, generally speaking, in the manner prescribed by him.

ART. V. *Some Remarks on Temperature Considered in Relation to Vegetation and the Naturalization of Plants.* Communicated to the Mass. Hort. Society by Mr A. J. DOWNING, of Newburgh, N. Y.

THE natural distribution of the vegetable kingdom over the face of the globe, as affected by various causes, and chiefly by the temperature of the different countries and continents, is one of the most interesting of all subjects. As the illustrious Von Humboldt has observed, it is "intimately connected with the physical world in general. Upon the predominance of certain families of plants in particular districts, depend the character of the country, and the whole face of nature; and the natural congregation of vast masses of vegetation of the same character in particular countries, has produced most important effects upon the social state of the people, the nature of their manners, and the degree of developement of the arts of industry."

The difference of vegetation, as exhibited in the torrid, the temperate, and the frigid zones, is sufficiently familiar to every one. The equinoctial regions, abounding with their splendid vegetation of lofty Palms, Bread-fruit trees, Plantains and Banannas, laden with huge masses of nourishing food, differ as widely from those portions of the earth lying in the temperate zones, where the vine flourishes in perfection, and the cereal grains furnish the chief means of subsistence to man, as the latter does from the arctic regions, where the grasses and cryptogamic plants still keep up the diminishing scale of vegetable life, and contribute to the support of a higher class of organized beings. It is probable that almost every country produces naturally in its vegetation, sufficient means for the subsistence of man; either directly, as in the torrid and temperate regions through the medium of delicious fruits, esculent roots and seeds, or indirectly, as is partially the case in the temperate and frigid divisions through animal life, which primarily subsisted upon vegetation in some of its forms. But man in a civilized state, especially in those countries where climate forbids nature to lavish her bounties in the greatest profusion, has refused to be satisfied with her supplies, and has delighted his taste and gratified his wishes by assembling around him, as far as possible, the productions of other countries, either to embellish his habitations, or satisfy his appetites. Hence many plants, which were exotics, have become so acclimatized or naturalized, as to afford the principal food of their inhabitants, and the staple productions of their soils. The vine and the fig, which are the boast of France, are not indigenous there. The orange, that produces its beautiful golden fruit in the south of Europe and our own country, is a native of Asia. Some of the commoner grains have followed civilized man in his migrations for such a length of time that it has now become difficult to say which was their native country. This is the case with wheat, millet and buckwheat, and many other grasses which it is supposed are indigenous in the oriental countries. How much *we* are indebted to other climates and other countries for our most valuable necessaries and luxuries in the vegetable kingdom, a single thought will convince us. Wheat, rye, and most of the other grains, cotton and rice, the staples of our soil have all been imported here; and our most delicious fruits, owe their origin to other lands. The peach is from Persia, the apricot from Armenia, the cherry from Pontus, and nearly all our finest cultivated varieties of apples, pears, plums, &c. from Europe.

These preliminary remarks lead us to reflect how much the arts of culture are indebted to the property which many plants have, to a certain degree, of becoming naturalized in a country where the variations of temperature differ from those of their own; and it may lead us also to investigate the most successful methods by which such exotics, natives of warmer climates, as may be valuable to us either in a useful or ornamental point of view, may be so naturalized as to be either partially or entirely hardy and able to withstand the severity of our northern winters. That a large proportion of the vegetation of the tropics, can never become acclimatized in regions liable to severe frosts, is evident to every one; but that a number of highly valuable plants, natives of peculiar situations in those countries, and more particularly those of the intermediate parallels of latitude, have been, and may be naturalized here, the history of Agriculture and Horticulture affords ample and abundant proof. Plants of rapid and bulky growth, succulent and tender stems, natives of the warmest districts, can never be for a long time exhibited in a state of vegetation here, except in an artificial temperature; but annual plants and trees and shrubs, with strong woody stems, particularly if natives of elevated tracts, as the sides of mountains and the tops of high table lands, may always be considered as affording probabilities of a capacity for naturalization in a colder region.

A method universally known, and which we are inclined to place foremost among the resources for the naturalization of plants, consists in sowing continually the seeds of the plant under trial, for successive generations and from seeds produced in the country into which the plant is introduced. This, though in many cases, a lengthy and somewhat tedious process, is, we believe, the same by which the most extensive and valuable naturalizations have been effected heretofore. The more tender fruits, as the peach, cherry, apricot and almond, have doubtless been rendered hardy in this way: each new generation possessing perhaps diminished vigor, but acquiring a more robust and hardy constitution. Although it would have been difficult, perhaps impossible, to have altered the contexture of the original tree if otherwise continued, — whether by cuttings, suckers, or layers — yet by reproduction from seed, each generation became a little more capable of withstanding the effects of a low temperature, until the desired result, was, in a measure, or wholly obtained. It is obvious, however, that the result brought about, is not the naturalization of the *original* species of tree or plant, but, as Professor De Candolle justly

observes in his "Physiologie Vegetale," of the *improved variety* produced from seed, and which has acquired in its contexture a diminished susceptibility to cold. The effects produced by this method of naturalization, are even more abundantly exemplified in the case of herbaceous and annual plants, than among ligneous trees and shrubs. As an instance of this, we may refer to the common Indian corn, which was undoubtedly originally a native of South America and the southern parts of this continent, but of which so many varieties have been produced by cultivation, that it may be said some particular one can be found naturalized and adapted to any parallel of latitude, from the equator to the 45°, and in Europe to the 55° of latitude.* This is often produced in annual plants, not so much by rendering the plant itself less sensible to cold, for in many cases this is scarcely at all effected, as by producing improved varieties, which shall ripen their seed and come to maturity in a cold climate, in half or even a fourth of the time necessary for that purpose, in the country where the species is originally a native. Thus the rice, so important an article of food to the natives of the East, was probably first cultivated in Ceylon and Java, whence it spread all over India, Japan, and the southern provinces of China, and the United States. It has also been introduced into Italy, Spain and the south of France, and we perceive that lately an improved variety has been found sufficiently hardy, to produce abundant crops in the comparatively cold climates of Hungary and Westphalia. Rice may now therefore be considered naturalized as far north as 46° in the old world. The luscious fruit of the melon and the cooling one of the cucumber, can scarcely be brought to maturity if the seeds are direct from the more southern climates where they are natives, but improved varieties have sprung up by culture, so perfectly naturalized as to produce abundant crop in almost every part of the United States. The horticulturist should never therefore reject even an annual plant, which will not come to maturity immediately without artificial aid in our climate, but if the subject is worthy of the pains, he should endeavor, by the aid of artificial shelter, if necessary, to procure the seed and sow it under the most favorable circumstances during several successive generations, when it will probably at last, produce him a variety which will withstand the severity of the climate, or come to maturity sufficiently early to escape the destructive effects of too

* Cobbett's Corn, which he brought to maturity in the short and cool summer of England, is, we believe, a very early variety from Canada.

great an abasement of temperature.* Considered in this light, the green-house may become one of the most useful, as well as ornamental and pleasing sources of enjoyment to the experimental horticulturist and the public generally.

We must not leave this part of the subject, without adverting to the advantages which may be obtained by artificial fecundations and impregnations, of highly ornamental or useful exotic plants, with more hardy species or varieties of the same genus; the produce of which may be highly superior varieties, having all the beauty or excellence of the tender species, and perhaps nearly the same robustness of constitution as the hardy one. We conceive it to be a method, by which, now that artificial hybridizing is so well understood, the most valuable results may in many instances be produced in a comparatively short space of time.

(To be continued.)

Art. VI. *Notices of Fruits, &c.*

Mr Fessenden — If the following observations, made during two short journeys in the autumn, are of any value, you are at liberty to use them.

The fall fruit, the past season, in the valley of the Connecticut river as far as Deerfield, the limit of my first tour, was generally abundant and good with the exception of peaches.

I found the Hadley pear, the original tree I think, growing in the garden of a Mr Montague, at Hadley. It is a fine melting pear, moderate size, covered with yellow russet, not much extended by grafting in that neighborhood. I could not ascertain whether it is the same with the Capsheaf, as is suggested as probable in the New American Orchardist of Mr Kenrick. Perhaps the description I have given of it will enable those acquainted with the Capsheaf, to determine.

* As a proof of the effects of a renewed reproduction from seed, we may mention that we planted, the present season, in a favorable situation, a quantity of seed of the Lima bean, direct from its native country, lat. 14 deg. S. — the plants produced, however, scarcely attained the period of flowering before they were destroyed by the frost, whilst the plants in their immediate neighborhood, the produce of a variety of the same bean, naturalized in the country, yielded as usual, abundant crops of matured seed.

The effects of the last winter in the destruction of fruit trees on the river, were very severe.

At Northampton, I made inquiry for Dr Hunt's Connecticut pear; but the widow of Dr Hunt, he having deceased, could not inform me respecting it, but presumed the tree had perished. If Mr Prince, who received it of Dr Hunt, can give information of whom, and from what place in Connecticut Dr H. received it, it would probably gratify some others besides me. Mrs Hunt kindly showed me her grounds, containing much excellent fruit; among others, the St Michael was loaded with fine fruit. Among them, also, was an apple of large size, striped with red, very fair, rather flat I should think, of a mild, tartish flavor, then fully ripe — about 15th September — which she called the *Boston Apple*. If it is known by any other name about Boston, or is described in the *Orchardist*, I wish Mr K., or some other of your correspondents, would give the synonyme.

At Kingston, New York, the extreme point of my other tour, I made some gratifying observations on the apples there cultivated. I had the pleasure of an interview with Judge Hasbrouck, from whom the Jonathan apple takes its name — incorrectly printed Harbrouck in the New American Orchardist. He informed me that the apple trees in that vicinity were very seriously injured the last winter. In addition to the apples named in Kenrick's Orchardist, on the authority of Judge Buel, two or three other kinds, probably natives of that region, are considerably cultivated there, viz. the Mouse apple, an excellent fall apple, and one pronounced as if spelt Koonrauchy, supposed by Judge Hasbrouck to derive its appellation from a common Dutch surname. This apple is remarkable for its property of long keeping.

The markets in New York were well supplied with fruit, especially apples and pears. (Oct. 1, to 10.) Among the apples not named in Mr K.'s Orchardist, there were two apparently deserving of cultivation, viz. the Pelican, a very large, fair apple for cooking; and the Pound Sweet, a very large sweet apple, yellow, with a red stripe. Of pears — the Seckel was fine; the Red Cheek and many others. It appears to have been a very favorable season for pears.

It is desirable that the Fruit Committee of the Massachusetts Horticultural Society, should embody the results of such a favorable season, of the information acquired, especially concerning the new pears, and give them to the public.

The garden and nurseries of the Messrs Prince, at Flushing, exhibited a splendid display of Dahlias. A specimen of Loan's Pearmain apple indicated the variety to be valuable; very fair, and of largish size, rather tart. M. S.

Berlin, Ct., Dec. 24, 1835.

[For the Horticultural Register.]

Art. VII. *Flowering of Hyacinths in Water, &c.*

T. G. Fessenden, Esq.

Sir — I send you the following recipe for promoting the flowering of Hyacinths in water, &c.

To one pint of rain water, add three ounces of nitre, one ounce of salt, half an ounce of salt of tartar, half an ounce of loaf sugar. When dissolved, strain and keep in bottles. Of this add ten drops to each glass, and renew every ten days.

To fruit the Banana — strip off all but the two upper leaves.

The Fernal Grape, which has been so much extolled, has been seen growing in great perfection during the summer of 1835, in a peculiarly favorable climate; it is an extremely shy bearer and was not considered to repay the trouble of its culture.

Yours, Respectfully, A Subscriber.

[For the Horticultural Register.]

Art. VIII. *A Query.*

Mr Editor — I would ask through the medium of your valuable Magazine, for the information of myself and others, what is to be done for those of us who have been caught the past autumn with our *bulbs*, not in the ground where they should be, but above ground. Will they bloom if they are planted as early as possible in the Spring? Information upon the subject will be of much benefit to many

Boston, Jan. 20, 1836. Amateurs.

[From Harrison's Horticultural Cabinet.]

Art. IX. *A Description of Roses.* By Mr T. Rivers, Jr. Nurseryman, Sawbridgeworth, Hertfordshire.

The following terms are used to express the form of the flower: —

Globular. — The outer petals encircling the flower till fully blown, in the manner of the Common Cabbage or Provence rose.

Expanded. — The flower rather flat, petals open; in some varieties showing the central stamens.

Cupped. — The outer row of petals erect, rather incurved, enclosing numerous smaller petals; the crimson Perpetual rose when first open will illustrate this term.

Reflexed. — The petals turned back, something like the French Marigold.

Imbricated. — The flower flat, petals laying over each other like the centre of a good double Anemone.

Compact. — Petals stiff, close and upright, resembling a double Ranunculus.

MOSS ROSES.

NAME.	COLOR.	FORM AND CHARACTER.
Blush,	pale blush,	globular and very double.
3 Crimson or damask,	light crimson,	expanded and double.
1 Crimson or ecarlate of the French,	very bright Rose,	globular, large and very d'ble.
4 Common,	rose,	globular large, and very d'ble.
1 Crested, rosa, cristata, or crested provence,	rose,	globular, very large and d'ble. with fine crested buds.
2 De la fleche, or scarlet Graciles,	bright carmine,	cupped small and double.
1 Mottled,	rose, mottled,	globular and double.
1 Mousseuse partout, or Zoe,	rôse,	globular and double, the plant covered with moss.
1 Miniature, (Rivers),	bright crimson,	cupped, very small, semi d'ble.
3 Prolific,	rose,	globular and double, an abundant bloomer.
2 Pompone, or de Meaur,	pale blush	compact, small and very d'ble.
2 Perpetual white,	white, oft. strip'd	
Rouge du Luxemburg, or Ferugineuse,	with pink, deep red, with purple tinge,	blooming in clusters and sometimes in the autumn. cupped and double.
1 Spotted,	carmine, with pale spots,	expand semi double.
1 Striped,	pale, with red,	cupp'd, and but partially moss'd.
2 Sage leaved,	bright rose,	cupped and very double.
3 Single rose,	bright rose,	expanded and large.

1 Single lilac,	lilac rose,	expanded.
Single de la fleche,	carmine,	expanded.
—— Single (Rivers,)	very bright rose,	globular and distinct.
Viellard's,		
2 White Bath, or Cliffon white, the Mousseuse unique of the French,	pure white,	globular, d'ble. and very mossy.
2 White old,	very pale flesh,	globular and very double, but partially mossed.

This complete collection of twentyfour varieties of Moss Roses, comprises many that are beautiful and distinct, and some, perhaps, only fit for those amateurs, who think with me, that all Moss Roses are beautiful; one step farther towards a dark crimson Moss, is made in the Rouge du Luxemburg, which is very beautiful, and a most luxuriant grower. Most of the varieties prefer a cool soil, though Mossy de Meaux is perhaps an exception, as it seems to flourish better in light, dry soils. The white moss, unless budded on the Dog rose, (rosa canina) will not, in general, grow well; its sickly appearance in some situations, may be often traced to its being worked on some improper stock; if on its own roots, in rich soils, it will often change to pale blush. All are well adapted for standards; but to have them in perfection in warm, dry situations, in March put round each stem, on the surface of the soil, the fourth of a barrowful of manure; on this, place flints or moss, to take off its unsightly appearance, and make a little ornamental mound. This treatment will keep the soil cool, and make them bloom in a most superior manner, even in situations previously thought to be most ungenial to their culture. The manure should be spread on the surface in November, and lightly forked in.

PROVENCE, OR CABBAGE ROSE.

NAME.	COLOR.	FORM AND CHARACTER.
3 Anemonvelflora,	blush,	cupped, anemone like.
4 Blush,	pale blush,	globular, and very large.
4 Common, or Cabbage,	rose,	globular, large and very double.
1 Celery leaved,	rose,	globular and double, with curious foliage.
2 Curled,	bright rose,	globular and double with crisped petals.
2 Delice de Flandres,	lilac rose,	cupped, and double.
3 Dianthœflora,	pale rose,	curious, with fimbriated petals.
2 Evelina,	pale blush, shaded	imbricated and double.
2 Grand Bercam,	bright rose,	globular, very large and double.
1 Grand Agate,	pale flesh,	globular, large and double.

2 Illustre Beaute,	pale rose,	compact and very double.
3 King of Holland,	rose,	globular and double, with leafy calyx.
2 La Cherie,	bright rose,	globular and double.
2 La Simplicite,		
1 Lacken,		
2 Monstrous, or Bullee,	rose,	globular and double, with curious foliage.
2 Petit Cesar,	lilac rose,	globular and double.
1 Reine de Provence,	pale blush,	globular, large and double.
2 Royal,	bright rose,	globular and very large.
3 Scarlet,	carmine,	cupped and double.
4 Single,	rose,	expanded and large.
1 Striped or Vilmorin panache,	pale flesh, striped with pink,	globular and double.
4 Unique,	pure white,	globular, large and double.
2 Unique Striped,	white, with pink stripes,	globular and double, not always striped.
2 Wellington,	deep rose,	globular, very large and double.

The Provence Rose is the Rosa provincialis, of Miller's Gardener's Dictionary; the Rosa centifolia, of modern Botanists; the Rose a centfeuilles, of the French. These last are both improper names, as they seem applied to the leaves of the plant, rather than to the petals of the flower, as intended. A most distinct and elegant family, and excessively fragrant. The footstalks of the flowers are slender, and the flowers are large, so that when in bloom, the plant has a peculiar pendulous and graceful appearance. The Moss rose is evidently a variety of this, as I have raised seedlings from the single Moss, which have lost all their mossy appearance, and have returned to the habit of the Provence rose; it has been asserted that, in a single state, it is found wild in Provence and Languedoc, but I can find no botanical authority for the assertion.

(To be continued.)

Art. X. *Miscellaneous Matters.*

To preserve Peach Trees from Worms.—I have been a constant reader of the American Farmer, from the time of its first publication, and frequently referred to it in hopes of finding an effectual remedy against the attack of the worm on peach trees. I found at different times a number of publications upon the subject, and believe have tried the greater part of the remedies therein prescribed, without success. Finally, I concluded that the old method of cutting the worm out with a penknife, was the only one upon which any reliance could be placed, and have therefore been in the constant habit of preserving my trees in that way for years. I have, however, lately made an experiment, which I have every reason to believe is quite as effectual, and attended with much less trouble. About a year ago, after I had gone the rounds, laid bare the roots, and cleared my trees of the worm, I took some fine screenings of anthracite coal, and put about a quart or two to the roots of each tree; this was done to about the one half of my peach trees. Last fall I went round as usual to cut out the worms; those trees which had the anthracite coal screenings about their roots, were, without a single exception, clear of worms; the others had, as usual, a considerable number. I immediately applied the coal to the whole of my trees; and thus far, am well pleased with my prospects of success. I propose continuing the experiment another year, after which, I can speak with more certainty upon the subject; but the circumstance that half of the trees, upon which the experiment was made, although situated precisely like the others, having been found clear of worms, when the others were full of them, is strong evidence in my mind, that the remedy will prove effectual.—*Farmer and Gardener.*

Gardening.—I should wish to inspire all the world with my taste for gardens. It seems to me impossible that a bad man should possess it: he, indeed, is incapable of any taste: but if I, for that reason, esteem the searcher of wild plants; the active conqueror of butterflies; the minute examiner of shells; the sombre lover of minerals; the frozen geometrican; the lunatics of poetry and painting; the absent author; the abstract thinker; and the discreet chemist,—there is no virtue which I do not attribute to him who loves to talk of gardens, and to form them. Absorbed in this passion, which is the only one that increases with age, he daily overcomes those which derange

the calmness of the soul or the order of society. When he has passed the drawbridge of the city gate, the asylum of moral and physical corruption, to go and work on his lands, or enjoy them, his heart rejoices at the sight of nature, and experiences the same sensation as his lungs, on receiving the pure air that refreshes them.—*Prince de Ligne.*

Pruning Grape Vines.—Hardy vines may be pruned any time during winter. If the work is done in the earlier part, the wounded parts will have longer time to become dry and hardened and the sap vessels closed, so that there will be less danger of their bleeding in spring. This operation is best performed during mild open weather, which frequently occurs in winter. Many grape vines of the hardy varieties have been allowed to grow without control, and have consequently become too thick and numerous in the branches. All but the most thrifty of the last year's shoots should therefore be cut away, and increased thriftiness in the vine, and an improvement in the fruit will be the consequence.—*Genesee Farmer.*

Gooseberries.—Gooseberries require a dead and rich loam: the ground must be well manured and kept free from weeds; and be careful to plant none but those that are of a good kind. The best mode of propagating them, is by cuttings or layers. Early in the spring, spade carefully around the roots, turn over the soil, and pull out all grass that may grow near them. Prune them by cutting out every worn-out, decayed, or irregular branch—let none be permitted to grow across each other; but let all be pruned to some regular order—cut out all the super-abundant, lateral shoots of the last summer, close to the ground, or old wood, only retaining here and there a good one, to supply the place of casual, worn-out bearers. Never permit the extremities of the branches to stand nearer than 6 or 8 inches of each other. The best form for a well trained gooseberry or currant bush, is that of a wine glass.

Gooseberry Wine is made in the same manner as currant wine, except that one third less sugar is required. In picking the berries, take none that have fallen upon the ground, or that have been shaded and grown sour.

New mode of making Jelly.—Press the juice from the fruit: add the proper portion of sugar, and stir the juice and sugar until the sugar is completely melted; and, in twenty-four hours, it will become of a proper consistence. By this means, the trouble of boiling is avoided,

and the jelly retains, more completely, the flavor of the fruit. Care should be taken to stir the mixture until the sugar is completely melted, and fine sugar should be used.

The two following items were inserted in our last, but there being an accidental transposition in them, is the reason of their again appearing.

Vegetable Chimney Ornaments. In winter, an elegant chimney ornament may be formed, by cutting the head or thick end of a carrot, containing the bud, and placing it in a shallow vessel of water. Young and delicate leaves unfold themselves, forming a radiated tuft of a very handsome appearance, and heightened by contrast with the season of the year.

Botanical Experiments. Two young beech trees, planted in the same soil, at a small distance from each other, and equally healthy were pitched upon as the subjects of the following experiments. They were accurately measured, and as soon as the buds began to swell in the spring, the whole trunk of one was cleaned of its moss and dirt, by means of a brush and soft water. Afterwards it was washed with a wet flannel, twice or thrice every week till about the middle of summer. In autumn they were again measured, and the increase of the washed tree was found to exceed the other two to one.—*Brattleboro' paper.*

Art. XI. *Faneuil Hall Market.*

REPORT OF THE PRICES OF FRUITS AND VEGETABLES.

Apples, Baldwins, best, per barrel,	$2,00	Onions, bunch, per hundred,	3,50
Russetts, Greenings do.	1,50 a 1,75	Pears, Iron, per bushel,	1,50
Beets, Long Blood, per bushel,	75 a 1,00	Potatoes, Chenango, per bushel,	50
Cabbages, Green Globe Savoy, per doz.	50	Eastport, per barrel,	2,00 a 2,25
Red Dutch, do.	75	Sweet, per bushel,	1,50
Large Late Drumhead, do.	1,25	Parsneps, Large Dutch, per bushel,	75
Cauliflowers, per head,	12½ a 25	Radishes, Early scarlet, per bunch,	12½
Celery, White solid, Celeriac and		Shagbarks, per bushel,	2,00
Rose colored, per root,	12½ a 25	Spinach, Prickly Tuft, per peck,	50
Chestnuts, per bushel,	2,50	Squashes, Canada Crook neck, per pound,	3
Cranberries, do.	3,00	Valparaiso, do.	3
Horseradish, per pound,	12½	Large Yellow Crook neck, do.	3
Lettuce, Rose or Tennis ball, per head,	12½	Turnips, White Flat, per bushel,	30
Onions, Wh. Portugal, per bushel,	75 a 1,00	Ruta Baga,	75

Erratum.—In our last, page 6, 11th line from top, for "had reached those distant shores," read "had *officially* reached," &c.